CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

TENTATIVE ADDENDUM NO. 5 TO
CLEANUP AND ABATEMENT ORDER NO. 92-01

KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL COMPANY, SANTA FE PACIFIC PIPELINE PARTNERS, LP, SHELL OIL COMPANY, TEXACO REFINING AND MARKETING INC., EQUILON ENTERPRISES LLC, EXXONMOBIL OIL CORPORATION

MISSION VALLEY TERMINAL
9950 & 9966 SAN DIEGO MISSION ROAD
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. This addendum incorporates by reference all of the previous findings in Cleanup and Abatement Order No. 92-01 and addenda (CAO).

2. Pollution from discharges of petroleum hydrocarbon fuel waste from the Mission Valley Terminal (MVT) extends approximately 4900 feet beyond MVT to the southwest across the parking lot at Qualcomm Stadium. The Qualcomm Stadium complex and associated parking areas are owned by the City of San Diego.

3. Kinder-Morgan Energy Partners, LP O/P SFPP, LP, Powerine Oil Company, Santa Fe Pacific Pipeline Partners, LP, Shell Oil Company, Texaco Refining And Marketing Inc., Equilon Enterprises LLC, and ExxonMobil Oil Corporation (hereinafter the Dischargers) have completed the investigation of pollutants in soil and groundwater as required by Time Schedule Order No. R9-2002-0042 (TSO). The Dischargers have proposed cleanup milestone dates for the off-property contamination in their *Final Summary Report* dated January 30, 2004.

4. The milestone cleanup dates submitted by the Dischargers in the 2004 *Final Summary Report* are not aggressive enough to protect and restore the designated beneficial uses of the groundwater in a timely manner. The off-property pollution can be cleaned up in a shorter time frame if more aggressive cleanup methods are used.

5. The groundwater pollution associated with discharges at and from MVT are continuing threats to water quality and must be monitored, contained, and cleaned up. A Quarterly Monitoring Program, a revised Corrective Action Plan, and further soil and groundwater investigations are needed to measure the Dischargers' progress toward containment and to adequately assess the effectiveness of cleanup of the pollution. Additionally, in order to address any new discharges of pollutants from the facility, the Dischargers must report all releases of pollutants from all systems that contain, store, and/or convey petroleum fuel products, wastes, liquids, or vapors.

6. The City of San Diego's (City) plans to use the groundwater resources, located downgradient of the groundwater pollution from the MVT, for public drinking water by 2010. In the event that the City builds and operates its proposed groundwater development project, Dischargers should have a Drinking Water Well Protection Contingency Plan to ensure protection of water quality for drinking water supply wells downgradient of the discharger's pollution.

7. This action is an Order to enforce the laws and regulations administered by the Regional Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321 of the Resources Agency Guidelines.

IT IS HEREBY ORDERED, pursuant to section 13304 and 13267 of the California Water Code the Dischargers shall cleanup and abate the effects of the discharge by complying with the following directives:

1. By **December 31, 2010,** Dischargers shall remove residual light non-aqueous phase petroleum liquid (LNAPL) from subsurface soil and ground water beyond MVT to the extent technically practicable.

2. By **December 31, 2013,** Dischargers shall reduce concentrations of dissolved phase petroleum hydrocarbon pollutants in groundwater beyond MVT to levels that are equal to or less than applicable water quality objectives pursuant to the Water Quality Control Plan, San Diego Region ("Basin Plan").

3. By **July 29, 2005,** the Dischargers shall prevent any further migration of petroleum hydrocarbon waste at concentrations in excess of applicable water quality objectives pursuant to the Basin Plan beyond MVT. If the on-property pollution appears to be migrating beyond MVT due to the failure or inadequacy of the existing containment system, the Dischargers shall notify the Regional Board within **24 hours** of their determination and shall implement additional interim cleanup and abatement actions to achieve full containment of the on-property pollution immediately. Dischargers shall provide written documentation on any additional interim cleanup and abatement action to the Regional Board within 30-days of implementation of those actions.

4. By **September 9, 2005,** the Dischargers shall provide the Regional Board with a technical report that contains the following minimum elements:

    a.) A synthesis of results from all previous investigation of the on-property discharge(s) of fuel related pollutants from the bulk fuel conveyance and storage operations at the MVT. This information shall also be used to develop/update a Site Conceptual Model (SCM) for pollution located within the property boundaries of the MVT.

    b.) A feasibility study (FS) of alternatives to cleanup and abate the effects from pollutants discharged from the operations at the MVT.

c.) Identification of Dischargers' preferred cleanup and abatement method(s) and any potential impacts to the groundwater from the proposed method(s) upon the cleanup and abatement of wastes beyond MVT.

d.) Proposed schedule for timely cleanup of on-property environmental pollution. The proposed cleanup method(s) must address liquid, vapor, and dissolved phase petroleum hydrocarbon pollutants in the soil and groundwater.

e.) A monitoring and reporting program capable of assessing the effectiveness and progress of the Dischargers' cleanup and abatement at MVT.

5. The Dischargers shall submit a workplan that describe the findings of an investigation of the need for additional soil vapor extraction wells located in the off-property source zone, especially in the areas along San Diego Mission Road, the area west of RW-31, RW-32, and RW-33, and the area west of RW-3. This workplan must also include plans to evaluate the spatial density of the soil gas monitoring points and ensure adequate coverage has been achieved. Any additional vapor extraction wells proposed should be designed to maximize flow and be directed at deeper portion of target zone within the soils exposed by dewatering. The Dischargers must provide the workplan to the Regional Board by **July 13, 2005.**

6. The Dischargers shall conduct a soil investigation to define the vertical extent of petroleum pollutants in the subsurface soils beyond MVT and provide a complete technical report to the Regional Board by July 29, 2005. Soil sampling should include TPH analysis, with a reporting of the TPH composition by carbon number ranges (e.g., % of TPH in <C4, C4-C6, etc. ranges) and results from leachability testing (using Synthetic Precipitation and Leaching Procedure – SPLP, EPA Method 1312) of soil core samples to provide remedial soil cleanup levels that will be used to ensure improvements to groundwater pollution through time. Results of this assessment should be combined with existing data from soil cores and CPT/LIF to verify the necessary drawdown of groundwater elevation needed to expose residual LNAPL in the soil. By **July 29, 2005,** the Dischargers shall provide the Regional Board with a complete soil investigation report.

7. The Dischargers shall revise and update or replace the existing Mission Valley Terminal Corrective Action Plan (CAP) dated October 29, 1999. The updated CAP must address the cleanup and abatement of pollution located beyond MVT by including the following elements: a comprehensive synthesis of results from investigations of current site conditions, selected cleanup methods, performance metrics, cleanup milestones, and all contingency plans required in this Order. The Dischargers shall provide the Regional Board with a complete revised/replacement CAP in electronic and paper format by **September 9, 2005.**

8. The Dischargers must develop a Drinking Water Well Protection Contingency Plan (Contingency Plan) for the City of San Diego groundwater production wells. This Plan must include all of the following minimum elements:

a. A groundwater monitoring well network to detect pollution that could impact the groundwater production wells.
b. Active interim remediation methods that will be implemented should the monitoring network provide evidence that the pollution could disrupt production of potable water supplies from the City's wells.
c. A plan to treat (*e.g.*, wellhead treatment) or replace the groundwater polluted by the discharger that would have been used for drinking water by the City.

The Regional Board must receive the Contingency Plan **within 60 days** of the Discharger being notified by the City (or any other individual or party) that a public water supply well has been installed downgradient of the discharger's pollution. The Discharger shall provide a copy of the written notice to the Regional Board **within 10 calendar days** of receipt from the City.

9. The discharger shall implement the Monitoring and Reporting Program, specified in Attachment 1, commencing with the quarterly report due on **July 30, 2005.**

10. The Dischargers shall report within **24 hours** to the Regional Board, all product/liquid releases (regardless of volume released) from the tanks, sumps, and/or piping systems at MVT. This includes releases from all tanks (permanent or temporary), all sumps, all product transfer pipelines (including incoming and outgoing intrastate pipelines carrying fuel in the MVT area), all tanks and piping systems containing fuel additives, and all water-draw pipelines. The report shall include the date, time and location of the release, the type of product/liquid released, and the cause of the release if known. The Dischargers shall also notify the Office of Emergency Services, the County of San Diego Hazardous Materials Division, and any other agencies that require release reporting, as soon as they have knowledge of a release.

11. Beginning **July 1, 2005**, all reports submitted by the Discharger pursuant to section 13304 and 13267 of the California Water Code must be submitted in an electronic format. This includes all workplans, technical reports, and monitoring reports. The Discharger shall comply with electronic reporting requirements of Title 23, Division 3, Section 3893 including the provision that complete copies of all reports be submitted in PDF format, including the signed transmittal letter and professional certification. In addition to these requirements, please submit paper copies of all figures larger than 8 ½ by 11 inches with the properly signed transmittal letter to the Regional Board.

Ordered by: **DRAFT**
John H. Robertus
Executive Officer

Dated: March 9, 2005

MISSION VALLEY TERMINAL

SUMMARY OF COMPLIANCE DATES FOR ADDENDUM NO. 5 TO ORDER NO. 92-01

DIRECTIVE NO.	REQUIREMENT(S)	DUE DATE
11	Electronic reporting of monitoring data, technical and monitoring reports is required.	**After July 1, 2005**
5	Workplan to investigate the need to install additional off-property SVE wells.	**July 13, 2005**
3	Prevent any further migration of pollutants beyond the Discharger's property boundary.	**July 29, 2005**
6	Complete soil investigation for the off-property source zone area.	**July 29, 2005**
4	Workplan containing proposed method(s) and schedule for timely cleanup of on-property pollution, and associated monitoring plan.	**September 9, 2005**
7	Revise existing Corrective Action Plan in compliance with this Order.	**September 9, 2005**
8	Drinking Water Well Contingency Plan	**Within 60-days of notification of installation of water supply well**
9	All SVE monitoring points meet performance criteria required by Monitoring and Reporting Program	**March 10, 2006**
1	LNAPL removed from subsurface in off-property area to extent practicable	**December 31, 2010**
2	Off-property concentrations of dissolved pollutants at or below MCLs	**December 31, 2013**
9	Quarterly Reports for Monitoring and Reporting Program begins with report on **July 30, 2005:** First Quarter (Jan – Mar) Second Quarter (April – June) Third Quarter (July – Sept) Fourth Quarter (Oct – Dec)	 **April 30** **July 30** **October 30** **January 30**

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TENTATIVE MONITORING AND REPORTING PROGRAM

KINDER-MORGAN ENERGY PARTNERS, LP o/p SFPP, LP, POWERINE OIL COMPANY, SANTA FE PACIFIC PIPELINE PARTNERS, LP, SHELL OIL COMPANY, TEXACO REFINING AND MARKETING INC., EQUILON ENTERPRISES LLC, EXXONMOBIL OIL CORPORATION

MISSION VALLEY TERMINAL
9950 & 9966 SAN DIEGO MISSION ROAD, SAN DIEGO,
SAN DIEGO COUNTY, CALIFORNIA

1. **AUTHORITY AND PURPOSE:** The dischargers are directed to submit the technical reports required in this Monitoring and Reporting Program (MRP) pursuant to authority granted to the Regional Board under California Water Code sections 13267 and 13304. This MRP is intended to document compliance with Cleanup and Abatement Order No. 92-01 and addenda thereto.

2. **GROUNDWATER MONITORING:** The dischargers shall measure groundwater elevations quarterly in all monitoring wells, and shall collect and analyze samples of groundwater from monitoring wells according to the following schedule:

Groundwater Monitoring Well Sampling Schedule

a) All groundwater monitoring wells shall have samples collected and analyzed on a quarterly basis except the following wells, which will be gauged on a quarterly basis, and sampled and analyzed on an annual schedule:

Well Number	Well Number
M-2	R-48AM
M-6	R-48AD
R-4	S-4
R-6	S-5
R-7	S-9
R-8	S-10
R-45AS	S-13
R-45AM	
R-45AD	
R-48AS	

Monitoring wells that are sampled on an annual basis shall be sampled during the fourth quarter of each year.

All sample collection, storage, and analyses shall be performed according protocols included in the U.S. Environmental Protection Agency (EPA),

"SW-846: Test Methods for Evaluating Solid Wastes Physical/Chemical Methods" (Version 5, dated April 1998). All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Board. Specific methods of analysis must be identified. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. If analytical protocols other than U.S. EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review by the Regional Board prior to use.

All samples shall be analyzed using EPA method 8015 for total petroleum hydrocarbons (TPH) quantifying gasoline and diesel fuel fractions and EPA method 8260b for volatile organic compounds including benzene, toluene, ethylbenzene, xylenes, methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA) and all other fuel oxygenates.

b) All groundwater monitoring wells within the groundwater pollution plume shall be sampled for aerobic and anaerobic biodegradation indicators including pH, dissolved oxygen, alkalinity, methane, ferrous iron, sulfate and nitrate on a quarterly basis.

c) The dischargers shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the petroleum constituents as required above. The dischargers may propose changes in the above groundwater monitoring requirements. All proposed changes to this monitoring and reporting program must be provided in writing and are subject to approval by the Regional Board.

3. **REMEDIATION MONITORING:** The Dischargers shall monitor the remediation systems, soil vapor, and groundwater to track remediation effectiveness and progress toward cleanup at the site. The reports for remediation system monitoring and performance must include the following minimum information:

   a) On a bi-weekly basis, measure total hydrocarbon concentrations and respirometry gases (O_2, CO_2, N) at all soil gas monitoring points. This monitoring can be performed using properly calibrated field instruments, but if field instruments are used, the total hydrocarbon analysis should utilize an FID detector. Of that sample set, analyze a minimum of 25% of the higher concentration samples by GC-FID. GC-MS analyses can be used in place of GC-FID whenever this monitoring program calls for GC-FID vapor or soil analysis, as long as GC-MS is used consistently for all analyses. Report the total hydrocarbon concentration and the composition in terms of carbon number ranges (e.g., % TPH in <C4, C4-C6, etc. ranges). After the first samples have been analyzed, propose a consistent

sample set of soil gas monitoring points that will be included in future analyses by GC-FID.

b) On a quarterly basis, perform in-situ respirometry test to assess for oxygen uptake/aerobic biodegradation rates using all soil vapor wells within the residual liquid phase petroleum (LNAPL) zone.

c) On a weekly basis, monitor total hydrocarbon concentrations, vapor flow rates and vacuum at each soil vapor extraction (SVE) well and optimize vapor flow rates for the SVE well network. A properly calibrated FID field instrument can be used to monitor the total hydrocarbon concentration, but lab analysis should also be conducted concurrently with every fourth sample.

d) On a monthly basis, sample each SVE well and analyze by GC/FID to determine the total concentration and composition in terms of carbon number ranges (e.g., % TPH in <C4, C4-C6, etc. ranges).

e) Demonstrate bi-weekly that each SVE soil gas monitoring point is:

1) Under vacuum at **ALL** screened depths;
2) Exposed to vapor flow and not water saturated;
3) Sufficiently aerated by the vapor flow such that O_2 concentrations exceed 10% v/v at all depths at each location.

If these performance criteria cannot be met by **March 10, 2006**, than dischargers must either increase SVE well density or use an alternate technology.

f) Remediation system operations. The Dischargers shall maintain a table indicating beginning and end of time periods when the system(s), or components thereof, were either shut down or not able operate at optimum levels and reasons for the occurrence.

g) At least every two years (during the Second Quarter), collect soil samples from the source zone to assess the effectiveness of the SVE remediation. Soil analysis must include TPH and TPH fraction/composition analysis (as expressed in carbon number ranges), and results from laboratory based leachate tests (using Synthetic Precipitation and Leaching Procedure – SPLP, EPA Method 1312) to compare with initial soil samples required in Directive No. 6 of CAO 92-01 Addendum No. 5.

4. **QUARTERLY GROUNDWATER MONITORING REPORTS:** The dischargers shall submit quarterly groundwater monitoring reports to the Regional Board **no later than 30 days** following the end of the quarter according to the following schedule:

First Quarter (Jan-Mar)	Due no later than April 30
Second Quarter (Apr-Jun)	Due no later than July 30
Third Quarter (Jul-Sep)	Due no later than October 30
Fourth Quarter (Oct-Dec)	Due no later than January 30

This schedule shall commence with the submission of a quarterly monitoring report due on **July 30, 2005.**

The quarterly monitoring reports shall include:

a) **Transmittal Letter:** The transmittal letter shall discuss any violations and/or petroleum releases during the reporting period and actions taken or planned to correct the problem(s). The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

In order to assist the Regional Board in processing correspondence and reports submitted in compliance with this cleanup and abatement order, the discharger shall include the following code number in the heading or subject line portion of all correspondence and reports submitted to the Regional Board: TSMC: 40-0054.

b) **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, with well number, date of observation, depth to groundwater, groundwater elevation, top of casing elevations, depths to the top of well screens, length of well screens and total depth for each well included in the monitoring program. All wells containing LNAPL shall also include the measured thickness of LNAPL on the groundwater elevation table. A separate groundwater elevation map must be prepared for each monitored water-bearing zone with the groundwater flow direction and calculated hydrologic gradients(s) clearly indicated in the figures(s). Historical groundwater elevations observed during the previous three-year period shall be tabulated in each report. All historical groundwater elevations must be in tabular format in the fourth quarter report each year. The historical groundwater information may be submitted in electronic or paper format.

c) **Reporting Groundwater Analysis Results:**

1. Analytical results from groundwater samples shall be presented in tabular format and include the following minimum information: well number, sample collection date, and concentration data for each constituent of concern (COC) required in this Order. The Dischargers shall provide an isoconcentration map prepared for each COCs for each monitored water-bearing zone, as appropriate. Time versus concentration plots and distance versus concentration plots shall be prepared for constituents of concern for appropriate wells. Both isoconcentration maps and plots shall be reported in log scale (e.g. 1, 10, 100, 1000, etc.).
2. Provide a site plot plan which clearly illustrates the locations of remediation and monitoring well networks, former/current underground and aboveground storage tank systems (including product piping) and buildings located on site and in the area of the pollution.
3. Provide a site plot plan with the most recent concentrations of total petroleum hydrocarbons and volatile aromatic hydrocarbons (*e.g.* benzene, toluene, ethylbenzene, total xylenes, MTBE, TBA and other fuel oxygenates).
4. The report shall provide narrative technical interpretations of the groundwater data. The text must include a description of any significant increases in pollutant concentrations since the last report, any measures proposed to address the increases, any changes to the site conceptual model, and any conclusions and recommendations for future action.
5. The report must include analytical methods used, detection limits obtained for each reported constituent, lab analysis results and QA/QC data. A narrative discussion and explanation of any problematic QA/QC data must also be included in the report.
6. The report shall describe sample collection protocol, describe how investigation derived wastes are managed at the site, and include documentation of proper off-site disposal of site derived wastes (including but not restricted to contaminated well purge water, soil cuttings, free petroleum product- LNAPL, *etc.*).

d) **Remediation Report:** The Remediation Report shall include the following information for all active remediation and any interim remedial actions initiated during the reporting period:

1. Groundwater extraction results shall be reported in a tabular format, for each extraction well and for the site as a whole, expressed in gallons of groundwater extracted per day and total groundwater volume extracted for the quarter.

2. Calculated pollutant removal results, from operation of the groundwater extraction wells and from other cleanup and abatement systems, shall be reported in units of chemical mass per day and total mass for the quarter. The fourth quarter report shall indicate a total mass of pollutants removed for the preceding year.
3. Historical mass removal results shall be included in the fourth quarterly report each year. Remediation monitoring data listed in Section 3 of this Monitoring and Reporting Program. Include a discussion and technical analysis of any data trends, system inadequacies, and system changes/upgrades. The narrative section must also indicate scheduled maintenance events for the next reporting period.5. Evaluation of effectiveness and assessment of performance. The second and fourth quarter Remediation Reports shall include a complete evaluation of the performance and effectiveness of the remediation system(s) at the site. The evaluation shall include a full report of system operations during the reporting period, and an assessment of whether the systems are adequately performing to meet all the cleanup and performance milestones required in Addendum No. 5 to Order 92-01 and this MRP. If the remediation is not progressing at a rate that will meet one of more of the required milestones; the report narrative shall clearly indicate that expectation and include recommendations for the necessary modifications/enhancements to the configuration and/or operation of the remediation systems.

e) **Use of Registered Professionals:** The discharger shall provide documentation that plans and reports required under this Order are prepared under the direction of appropriately qualified professionals. California Business and Professions Code Sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professionals shall be included in all plans and reports submitted by the discharger. The lead professional shall sign and affix their registration stamp to the report, plan or document.

f) **Release Report:** The report shall include a list of all releases, regardless of volume, from the tanks and/or piping systems for the quarter. This includes all tanks (permanent or temporary), all sumps, all product transfer pipelines, and all water-draw pipelines. The report shall also include a site plot plan indicating the location of each release, the date the each release was discovered, the cause of each release, an estimated volume of material/pollutants associated with each release, date the releases were reported to the agencies as required by statute/regulation or this Order, and the mitigation methods employed to repair the problem(s). A list of all

historical releases and mitigation methods shall be included in the fourth quarterly report each year.

g) **Status Report**: The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures, results of implementation of the Corrective Action Plan) and work planned for the following quarter. The status report shall also indicate any problems in completing site related work during the previous reporting period (*e.g.*, equipment malfunctions, site access problems, *etc.*).

5. **VIOLATION REPORTS**: If the Dischargers violate requirements in the Cleanup and Abatement Order, then the dischargers shall notify the Regional Board office by telephone and facsimile as soon as practicable once the dischargers have knowledge of the violation. Regional Board staff may, depending on violation severity, require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.

6. **OTHER REPORTS**: The Dischargers shall notify the Regional Board verbally prior to any site activities which have the potential to contribute to, create or exacerbate a condition of pollution or nuisance (*e.g.*, cause or contribute to additional contaminant mass or migration of pollution) or which would provide new need for site investigation.

7. **RECORD KEEPING**: The Dischargers or his/her agent shall retain data generated for the above reports, including laboratory results and QA/QC data, for a minimum of six years after origination and shall make them available to the Regional Board upon request.

8. **MONITORING AND REPORTING PROGRAM REVISIONS**: Revisions to the MRP may be ordered by the Regional Board, or requested by the dischargers. Prior to making MRP revisions, the Regional Board will consider the burden, including costs, of the groundwater monitoring reports relative to the benefits to be obtained from these reports.

9. **REPORTING FORMAT**: The format of all monitoring and technical reports provided to the Regional Board in compliance with the MRP shall comply with the requirements of the Directives of Addendum No. 5 to Order 92-01.